

The Redstone Rocket

Published by Jack W. Hoffhaus, a private individual, at Huntsville, Ala. Opinions expressed by the publisher and writers herein are their own and are not to be considered an official expression by the Department of the Army. The appearance of advertisement in this publication does not constitute an endorsement by the Department of the Army of the products or services advertised.

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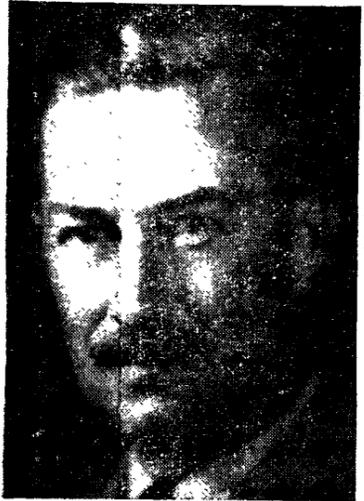
OCTOBER 21, 1959

EXPLORER VII ORBITING PRESCRIBED PATH

UGF DONATIONS RISING TOWARD 'FAIR SHARE'

The Rohm and Haas Company has set a noteworthy example in the Redstone United Givers Fund campaign with its 268 employees contributing 105 per cent of their "fair share" goal.

After only four weeks of the Redstone drive, five Arsenal UGF agencies report collections in excess of their total last year's receipts. The Army Rocket and Guided Missile Agency is out in front of its 1958 collections by \$10,000. Both Thiokol and ABMA are \$4,000 ahead of last year's (See UGF DONATIONS, Page 3)

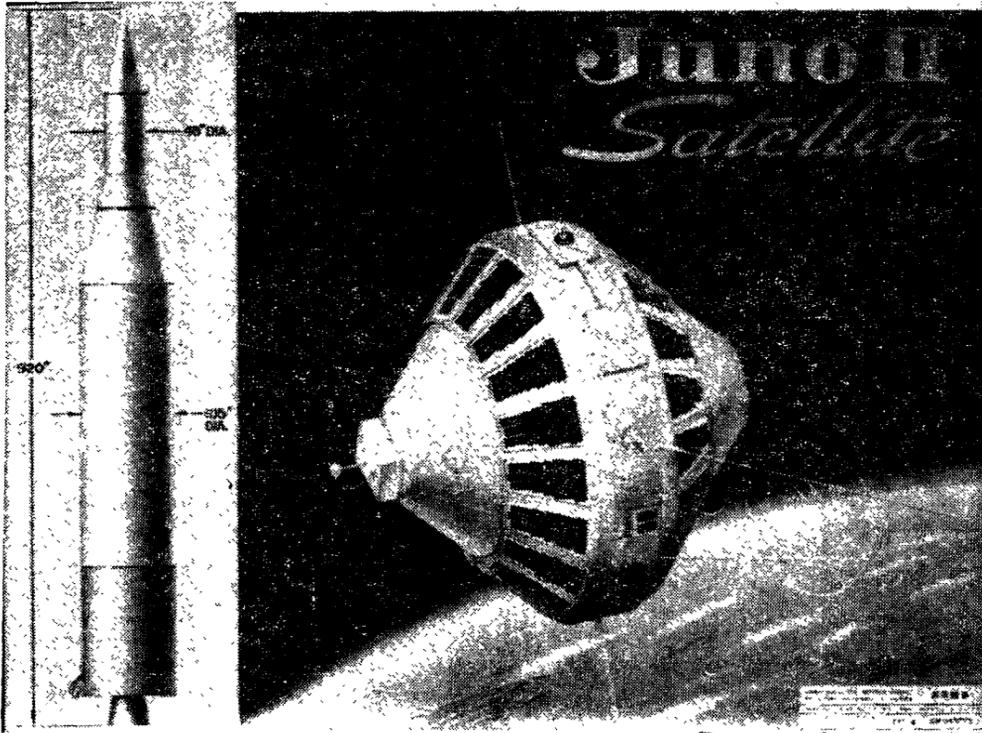


GEN. MEDARIS TO RETIRE JAN. 31

Maj. Gen. John Bruce Medaris Tuesday announced his intention to retire from active military service, effective Jan. 31, 1960.

Gen. Medaris has over 38 years of military service, of which about 28 years has been on active duty. The balance was service in the National Guard and Officers Reserve Corps.

As the Commanding General of the U. S. Army Ordnance Missile Command, he has directed the ordnance phase of the Army's rocket, guided missile and outer space programs, collectively the largest peace time enterprise in the nation's history.



SATELLITE LAUNCHER—The Explorer VII satellite depicted circling the Earth, was launched into orbit last week by the Army's Juno II rocket, left, which stands more than 76 feet tall and has a maximum diameter of nearly nine feet.

ARMY VEHICLE SUCCESSFULLY LAUNCHES 'MOON'

The Juno II rocket and its Explorer VII earth satellite, successfully launched Tues., Oct. 13, by the Army from Cape Canaveral, functioned with such outstanding precision and accuracy that even scientists at the Army Ballistic Missile Agency who built the rocket and satellite are marvelling at their performance.

Launched under the direction of the National Aeronautics and Space Administration, the satellite continues to circle the earth every hour and 41 minutes sending back valuable radiation and weather information.

"The entire operation was a complete and unqualified success. The firing was less than a second off schedule, and all instrumentation and experiments in the satellite have worked perfectly from the beginning," declared Brig. Gen. J. A. Barclay, ABMA Commander.

Recalculations show that the satellite's orbit is much nearer the planned or scheduled pattern than was originally announced. It is following an elliptical path, traveling 630 miles from the earth at its farthest point and 346 miles at its nearest point.

The liftoff, scheduled for 10:30 a.m. EST, came exactly .04 second later, without one interruption in the countdown. Cutoff of the first stage, a modified Jupiter IRBM, occurred within 1.91 second of the scheduled time.

The second, third and fourth stages provided by the Jet Propulsion Laboratory were ignited with the same minute precision. Stages three and four were ignited with such accuracy that scientists could not detect any measurable deviation from the pre-calculated time. Ejection of the shroud protecting the satellite and upper stages from aerodynamic heating occurred .10 second later than planned.

Injection of the satellite into orbit 14 minutes after liftoff proceeded on schedule. The satellite was then separated from the (See EXPLORER IV on Page 2)

Two Arsenal Stations Pick Up Signals From Orbiting Explorer VII

Two tracking stations at Redstone Arsenal, one operated by the Army Ballistic Missile Agency and the other by the Army Rocket and Guided Missile Agency, picked up signals from the Explorer VII satellite after the orbiter left the launching pad at Cape Canaveral, Fla.

The ABMA station, a part of the Agency's Guidance and Control Laboratory, continued operations for several days. The ARGMA station, operated by the Missile Electronics Laboratory of the Ordnance Missile Laboratories Division, will receive signals for weeks for use in connection with radiation research and propagation studies.

All preliminary tracking data received was transmitted to ABMA's Evaluation Center where Dr. F. A. Speer of the Aeroballistics Laboratory conducted "operation quick look" to determine the initial orbital characteristics of Explorer VII. Both stations also gathered scientific data from the satellite's transmitters.

NIKE ZEUS TEST AT WHITE SANDS IS SUCCESSFUL

A test model of the Army's Nike-Zeus anti-missile missile performed successfully in an experimental test firing at the White Sands Missile Range, N.M., last week. During the coasting phase, the flight terminated short of the planned trajectory but yielded the desired terminal data.

Purpose of the test flight was to obtain information on flight and propulsion characteristics of the missile.

The Nike-Zeus is being developed by the Army to defend the nation against intercontinental ballistic missiles.

The Nike-Zeus booster motor and sustainer motor were fired in today's test. Both performed successfully.

In a previous experimental test, Aug. 26, the Zeus test missile was launched successfully. But the flight terminated when technical difficulties developed causing a breakup in midair.

The Nike-Zeus booster, the missile's first stage, is the most powerful known single unit solid (See NIKE-ZEUS on Page 3)

WEATHER BUREAU CHIEF SAYS 'NEW ERA' SIGNIFIED

The Army's successful launching of its Explorer VII earth satellite equipped with vital radiation balance experiments has been heralded as signifying a "new era in global meteorology," by F. W. Reichelderfer, chief of the United States Weather Bureau.

In a telegram yesterday to Maj. Gen. J. B. Medaris, Commanding General, Army Ordnance Missile Command, Reichelderfer sent his congratulations to the Army Ballistic Missile Agency for its "successful launching of a satellite containing heat balance experiment."

The Juno II rocket-booster Explorer VII satellite, launched last (See WEATHER on Page 2)

Army Places Fourth Satellite In Orbit

The Army Ballistic Missile Agency last week launched Explorer VII earth satellite from Cape Canaveral, Fla. The orbiter, fourth to be launched by the Army, contained seven experiments designed to extend knowledge of outer space and particularly cosmic radiation activity.

Explorer VII was launched by the Army Tuesday, Oct. 19, at the direction of the National Aeronautics and Space Administration as a further contribution to the space exploration program. The launching vehicle was the Army Juno II rocket, the same rocket which placed the Pioneer IV space probe in an orbit around the sun March 3. The satellite weighs 91.5 pounds. It employs the latest developments in space technology and emphasizes miniaturization of components. The orbiter was launched in a northeasterly direction. The extremities of its orbital coverage will be 50 degrees latitude, North and South. Thus it will cover much of the Earth's surface.

The satellite was designed, fabricated, and tested prior to launch by the Army Ballistic Missile Agency of the Army Ordnance Missile Command. ABMA is responsible for the Jupiter rocket and NASA Jet Propulsion Laboratory designed the high-speed cluster.

(See ARMY on Page 3)



100 PER CENT PARTICIPATION — Col. T. T. Paul, Jr., deputy commander of ABMA, (foreground, center) congratulates Fritz Vandersee, chief, Structural and Mechanical Section of ABMA's Test Laboratory, on his Section's 100 per cent partici-

pation in the Redstone United Givers Fund drive. Miss Mary Orr, standing between Vandersee and Col. Paul, accepts a UGF missile on behalf of the 96-man-section.

The Redstone Rocket

The Redstone Rocket is a privately owned newspaper published every Wednesday at no expense to the Government by Jack W. Hoffhaus, Huntsville, Alabama, with exclusive regard for the reader interests of personnel at Redstone Arsenal, Alabama, in accordance with an agreement between the publisher and the Public Information Office, Army Ordnance Missile Command, Redstone Arsenal, Alabama.

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Weather

(Continued from Page 1)

Tuesday by the Army from Cape Canaveral, employs the latest developments in space technology. Seven varying experiments are contained within the highly miniaturized 91.5-pound "space laboratory" satellite.

Basically, the radiation balance experiment is designed to measure (1) the direct radiation from the sun; (2) the fraction of this radiation diffusely reflected by the earth, clouds and atmosphere; and (3) the fraction of radiation which is converted into heat by the earth and ultimately is re-radiated back into space in the far infra-red portion of the spectrum.

These measurements are effected by six sensing elements located at various points of the surface of the satellite.

The need for this study evolves from the fact that the earth receives more energy from the sun near the Equator than it radiates into space. And, it radiates more energy into space from the poles than it receives from the sun. Thus, energy must be transferred from the lower latitudes to the higher latitudes by means of ocean currents and the atmosphere. It is, then, the study of this transfer that interests scientists.

The radiation balance experiment was proposed by Dr. Harry Wexler of the U. S. Weather Bureau and is being conducted by Dr. Verner E. Suomi of the University of Wisconsin.

Explorer IV

(Continued From Page 1)

spent fourth stage. The antenna release also functioned perfectly.

At the time of its injection into orbit, the satellite was traveling at a rate of 24,300 feet per second, only 59 feet per second less than had been calculated. This speed was measured by an earth-fixed observer.

Due to more efficient computation programs and processes, Army scientists and mathematicians here were able to provide orbital information within one hour after orbit was achieved. In pre-

FIVE MORE UGF AGENCIES NAMED

The following is the fourth and final article in a series intended to inform Redstone employees of the services offered by the 21 humanitarian organizations supported by the United Givers Fund. Organizations described in previous issues of the Rocket are:

The Alabama Society for Crippled Children and Handicapped Adults, The Council Day Care Center, Christmas Charities, The Huntsville Boys Club, Grace Club Day Care Center, American Red Cross, Church Street Community Center, Girl Scouts, Boy Scouts, American Hearing Society, American Social Hygiene Association, Community Council, Madison County Mental Health Association, National Recreation Association, and the National Travelers Aid Association.

A brief description of the five remaining agencies is as follows:

1. Madison County PTA Milk Fund: With the funds provided by the UGF, the PTA Milk Fund enables the underprivileged children of Madison County schools to have milk with their lunches.

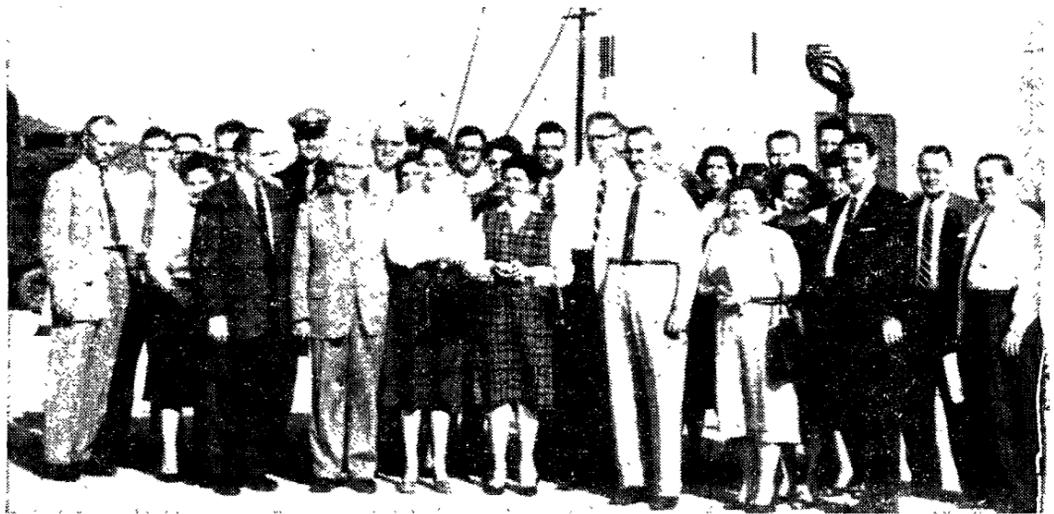
2. Salvation Army: The Salvation Army administers shelter, food, clothing, medicine, transportation and counseling to those in need. In addition, it provides emergency relief to resident families, and conducts a youth program of recreation and music.

3. USO: The USO, meeting the human and social needs of members of the Armed Forces and their dependents, maintains clubs, lounges and area services to mil-

itary personnel both at home and abroad. The 176 domestic and six overseas units operate building-centered programs, providing facilities for reading, writing, dancing, TV viewing, and other religious and educational activities.

4. Central YMCA and West Huntsville YMCA: These organizations, in which over 2,000 children were enrolled during 1958, sponsor such activities as swimming, baseball, soccer, football, track and travel programs. The "Y" also conducts a summer camp, Camp Cha-La-Kec, at Gunterville Lake.

5. United Jewish Appeal: The UJA provides funds to needy Jewish refugees. It also contributes money to the National Tuberculosis Hospital at Denver, Colo. This is a non-sectarian hospital that serves only those patients that cannot afford medical treatment.



CIVITAN INTERNATIONAL.—Top officials of Civitan International, who met in Gunterville last week, toured the Army Ballistic Missile Agency on Friday. The group was welcomed by Col. T. T. Paul, deputy commander. They are shown here before a Jupiter missile at the Systems Support Equipment Lab. Other facilities visited included the Fab Lab and Test Lab.

Local Inventors Represented At Commerce Exhibit

For the first time a defense agency is participating in the U. S. Government Patent Office-Department of Commerce exhibit in the main lobby of the Commerce Department building, Washington, D.C.

The display, which will be held until Nov. 13, has the inventions of 14 individual employees of Agencies at the U. S. Army Ordnance Missile Command among the exhibits.

Formal opening ceremonies were held yesterday with Secretary of Commerce Frederick Muller and Commissioner of Patents Robert C. Watson scheduled to participate. Brig. Gen. J. A. Barclay, deputy commanding general of AOMC and commander of the Army Ballistic Missile Agency, planned to attend.

The AOMC display is made up of models and pictures of some of

the Army's missiles including the first American satellite fired into space, Explorer I, and Explorer VII which was launched into orbit last week.

The inventors and their inventions which prompted the Defense Department's invitation to participate in this display are listed: clinometer assembly, inventor Oscar C. Holderer; connector for Printed Cables, inventor Josef Boehm; crank accelerator, inventor Adolph L. Herrmann; fin-stabilized center-rotated rocket, inventor Raymond I. Strickland and William C. McCorkle, Jr.; gyroscopic accelerometer, Fritz Kurt Mueller;

Level indicating device, Fritz K. Mueller; locking device, Adolf L. Herrmann; missile roll indicator, Oscar C. Holderer; printed cable, Wilhelm Angele; The Rocket, Friedrich G. von Saarma; space satellite motion simulator, Walter Haeussermann; space vehicle attitude control system, Josef Boehm; tape recorder, Adolf L. Herrmann; ultrasonic probe, Paul J. McInnish.

Pediatric Seminar Scheduled Oct. 29

The Redstone Arsenal Army Hospital's monthly Pediatric Seminar will be held at 7 p.m. Thursday, Oct. 29, at the Post Chapel.

All parents and other interested personnel are invited to attend.

The topic will be "Gastro-intestinal Problems Including Cholera, Vomiting, and Diarrhea." Leading the seminar will be Capt. Joel K. Ekins, Chief, Pediatric Service, U. S. Army Hospital, Redstone Arsenal.

ATTENDS CONFERENCE

Roy Hollihan, general manager of the Redstone Federal Credit Union, attended the National Credit Management Conference on October 4-7.

The conference was held at the Statler Hilton Hotel, Detroit, Mich. It was composed of representatives from 212 credit unions having assets of one million dollars or more.

Discussions centered on procedures, policies and problems peculiar to the large credit unions.

The Redstone Federal Credit Union boasts 11,089 members with assets of \$4,033,637.67 as of Sept. 30, 1959.

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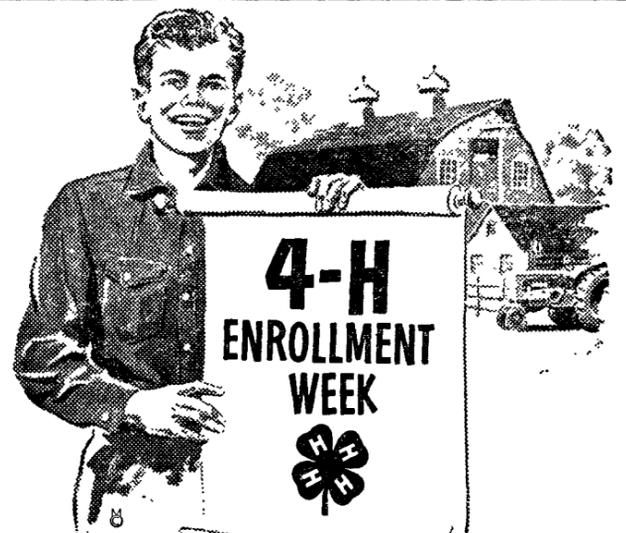
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(Continued from Page 1)

Explorer VII was the latest in the series of Army-launched satellites which began with the first U. S. orbiter, Explorer I, launched on Jan. 31, 1958. Two other Explorers were launched later. The four Explorers have contributed scientific data of extreme importance to the nation's outer space research efforts.

The greatest achievement of the Explorers was the discovery and subsequent investigation of the Van Allen Radiation Belt which circles the Earth. Scientists participating in the International Geophysical Year considered this among the most important findings of the worldwide research program.

Explorer I detected a deadly band of radiation beginning at about 600 miles altitude. The exact nature and intensity of the radiation was not known, but it was apparent that this obstacle could block or greatly delay man's entry into space.

The number of particles encountered per second was some 1,000 times greater than what had previously been considered normal.

Explorer III, launched March 26, 1958, carried more sophisticated instrumentation. The radiation band discovery was confirmed and knowledge of the distribution was greatly extended with the more elaborate radiation equipment, plus a tape recorder which made possible readings representative of the total orbit.

The instrumentation carried on the first two satellites was not capable of distinguishing between the types and energy levels of radiation. A new package was designed, and launched by the Army July 26, 1958, Explorer IV.

These instruments, like those orbited in the earlier Explorers, were designed by Dr. James A. Van Allen and associates at the State University of Iowa. Van Allen, chairman of the Iowa physics department, is a world pioneer in radiation research.

Explorer IV contained four radiation counters instead of the one each carried by I and III. This system of four detectors gave excellent data on the distribution and energy level of the radiation. In order to obtain a wider geographical coverage, the satellite was launched to orbit at

(Continued from Page 1)

propellant rocket motor ever fired. It develops more than 400,000 pounds of thrust at launch. The engine was developed by the

51 degrees inclination to the equator, instead of the 34 degree inclination of previous U. S. satellites.

Explorer I confirmed man's ability to control temperature within an artificial satellite. Scientists of the Jet Propulsion Laboratory who conducted the heat experiment were assured by results that their technique for temperature control is adequate for the successful operation of sensitive electronic equipment.

The internal temperature was maintained between 32 and 104 degrees Fahrenheit—well inside the tolerance needed to protect instrumentation from heat or cold failure. Outside temperature, measured at the shell, fluctuated between 14 and 167 degrees Fahrenheit. Inside temperature, of course, is easily within the range acceptable for human survival.

In the third area of Explorer I's instrumentation, it was determined that micrometeorites offered no serious hazard to orbiting vehicles. Two wires on the Explorer I erosion gage were fractured during the firing of the last stage; no additional fractures occurred during the satellite's lifetime. The impact microphone inside the vehicle registered the collision of several small particles on the shell.

Visual and photographic observations of the Explorers are contributing to still another area of science. The satellites were sighted and photographed hundreds of times. These pictures have been used to compute and predict more precise orbital data for other satellites, and are being analyzed to provide information about the earth's equatorial bulge, and anomalies in the earth's gravity.

Three of the four Army-launched satellites are still orbiting. Explorer I is expected to stay aloft five to seven years; Explorer IV's lifetime expectancy was about one year, so its re-entry is imminent. Explorer III, its batteries exhausted and missions completely fulfilled, reentered June 28, 1958.

(Continued From Page 1)

total. The AOMC Headquarters agency is presently \$2,000 over its '58 figure, Rohm and Haas has exceeded its previous years collecting by \$600.

The Air Force Agency continues to stay in the UGF forefront with 100 per cent participation and 94 per cent of its "fair share" quota. The AOMC Headquarters follows closely with 99 per cent participating 39 per cent of its present goal.

ARGMA is fourth, in the overall Arsenal standings, with a participation of 98 per cent and a "fair share" percentage of 77.

The Troop Command's UGF figures remain the same as last week's, with 83 per cent contributing 67 per cent of its goal. ABMA has increased its contributions to 37 per cent con-

Thiokol Chemical Corp. at Redstone Arsenal.

Grand Central Rocket Co., Redlands, Calif., developed the sustainer engine which will make up the second stage of the Nike-Zeus.

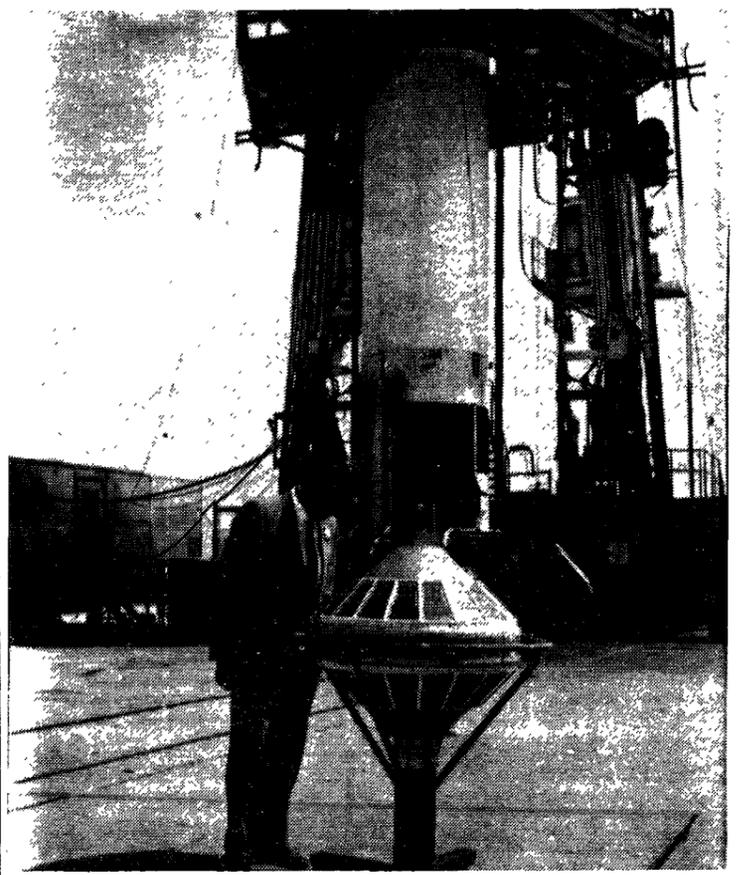
Western Electric Co. is prime contractor for the Nike-Zeus.

Bell Telephone Laboratories and Douglas Aircraft Co. are major development contractors.

Today's experimental test firing was conducted by Douglas crews.

The Army Rocket and Guided Missile Agency, a part of the Army Ordnance Missile Command, at Redstone Arsenal, Huntsville, Ala., is the Army's developing agency for the Nike-Zeus program.

The booster engine previously was static fired at Redstone Arsenal. The sustainer engine included in today's test was previously static fired at the Grand Central plant at Redlands.



DR. KURT DEBUS, director of the Army Ballistic Missile Agency's Missile Firing Laboratory, looks over the Explorer VII satellite at the launching site. The 91.5 pound satellite was placed in orbit by the Juno II rocket shown in the background.

tributing 53 per cent of its "fair share" goal. The Ordnance Guided Missile School reports a participation of 81 per cent and a "fair share" percentage of 41.

Thiokol's corporate management office in Huntsville has gone "over the top" in the current drive with 100 per cent

participation and 106 per cent of its "fair share" goal. The Redstone division of Thiokol has a 70 per cent participation and 43 per cent "fair share." The Redstone Arsenal agency reports 65 per cent of its personnel contributing 47 per cent of its "fair share" quota.

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No. 440-P 1959 Chevrolet 2 dr. Biscayne, solid blue, radio, heater **\$1,995**

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No. 489-P 1958 Chevrolet 4-dr. Bel Air, green finish, auto. trans., radio, heater, W.W. tires **\$1,895**

No. 479-P 1958 Chevrolet Bel Air, solid black, heater **\$1,595**

No. 439-P 1958 Ford 2 door, solid ivory, radio, heater, str. shift. **\$1,495**

No. 436-P 1958 Cadillac, 4-dr., black finish, all power, radio, heater, W.W. tires, air conditioned. **\$3,995**

No. 391-P 1958 Ford 4 dr, Custom 300, 2-tone paint, auto. trans., heater, W.W. tires. **\$1,795**

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No. 390-P 1957 Chevrolet 2 dr., blue & ivory, radio, heater, W.W. tires **\$1,395**

No. 279-P (A) 1957 Cadillac coupe, pink & ivory, power steering, power brakes, radio, heater, W.W. tires. **\$2,595**

No. 485-P 1956 Ford Victoria Coupe, grey & ivory, power steering, radio, heater, W.W. tires. **\$1,195**

No. 445-P 1956 Oldsmobile 4 dr. solid ivory, auto. trans., radio, heater, W.W. tires **\$1,595**

No. 420-P 1956 Plymouth Station Wagon, blue & ivory. **\$595**

No. 339A-P 1956 Mercury 4 dr., green & ivory, all power, radio, heater, W.W. tires, auto. trans. **\$995**

No. 330A-P 1956 Oldsmobile 4 dr., blue finish, radio, heater, power brakes, power steering, W.W. tires. **\$1,095**

No. 312-P Chevrolet 4 dr., station wagon, red & ivory, heater **\$995**

No. 484-P 1955 Oldsmobile 2 dr., blue & ivory, auto. trans., radio, heater. **\$1,095**

No. 447A— 1955 Plymouth, 2 dr., 2-tone green, radio, heater, W.W. tires. **\$595**

No. 498-P 1959 Chevrolet 4 dr., Bel Air, black, auto. trans., radio, heater **\$2,295**

No. 294-P 1958 Ford 4 dr. Fairlane, brown & beige, power steering, auto. trans., radio heater, W.W. tires. **\$1,795**

No. 497-P 1958 Oldsmobile 4-dr., blue and ivory, air cond., radio, heater, auto. trans., W.W. tires. **\$2,895**

No. 500-P 1958 Chevrolet 4 dr., Bel Air, 2-tone green, radio, heater, W.W. tires, continental kit. **\$1,995**

No. 501-P 1958 Oldsmobile 88, pink & ivory, radio, heater, power steering, power brakes, auto. trans., W.W. tires **\$2,295**

No. 495-P 1957 Ford Station Wagon, blue & ivory, heater. **\$1,495**

No. 476-P 1957 Chevrolet 4 dr., light green, heater, seat covers, W.W. tires. **\$1,495**

No. 462-P 1957 Chevrolet 4 dr., 210, black finish, heater, seat covers, W.W. tires. **\$1,495**

No. 453-P 1957 Chevrolet 2dr. 2 tone green, heater, seat covers. **\$1,395**

No. 424-P 1957 Plymouth 4 dr., solid black, radio, heater, W.W. tires. **\$1,295**

No. 346B-P '55 Ford 2dr., ivory & blue, radio, heater, auto. trans. **\$695**

No. 303A-P 1955 Oldsmobile 98, 4 dr., blue & ivory, auto. trans., power steering, power brakes, W.W. tires **\$1,095**

No. 298A-P 1955 Buick 2 dr., red & ivory, auto. trans., radio, heater, W.W. tires. **\$1,195**

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No. 475-P 1954 Pontiac 4 dr., red & black, heater. **\$395**

No.455B-P 1954 Buick 4 dr., **\$495**

No. 486A-P 1953 Ford 2 dr., solid black, 6 cyl., radio, heater, good tires. **\$395**

No. 474A-P 1953 Chevrolet 4-dr. **\$395**

No. 325-P 1953 Cadillac 4-dr., blue finish, air cond., power brakes, power steering, auto. trans., radio, heater, W.W. tires **\$995**

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No. 473-C 1958 Ford 1/2-ton pickup, blue. **\$1,295**

No. 493-C 1952 Studebaker 1/2-ton pickup, red. **\$195**

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Social News



COMMITTEE MEMBERS—Standing behind the main table at the sherry held yesterday afternoon (Oct. 13) by the Redstone Arsenal Officers Wives Club are Mrs. Thomas Koeneman (right), chairman for the event, and the members of her committee who are, left to right, Mrs. Robert R. Nix, Mrs. O. C. Grummt, Mrs. Harris, and Mrs. Chandler M. Whalen. More than 60 ladies attended the event.

Officers Wives Plan Busy Social Month

More than 60 ladies attended the sherry held by the Redstone Arsenal Officers Wives Club on Tuesday afternoon, Oct. 13, from 2 until 4 p.m. at the Officers Club.

In keeping with the season, the main table and a coffee table were decorated with bouquets of fall flowers which were awarded as door prizes to Mrs. James Harris and Mrs. B. I. Hill.

Mrs. Thomas Koeneman was chairman for the event, assisted by Mrs. Robert R. Nix, hospitality; Mrs. James E. Harris, menu; Mrs. O. C. Grummt, decorating; and Mrs. Chandler M. Whalen,

publicity.

Pouring during the sherry were Mrs. Donald C. Malisky, Mrs. D. H. Steininger, Mrs. Bernard C. Rulong, Mrs. C. C. Ege, Mrs. Paul W. Simpson, Mrs. J. Farrington, Mrs. Henry C. McClain, Mrs. Russell R. Boyd, Mrs. James P. Wooten, Mrs. Robert K. Jones, Mrs. Robert D. Morrow, and Mrs. James Harris.

The Wives Club will round out its social events for the month with a coffee on Tuesday, Oct. 27. Reservations to attend should be made not later than Oct. 26 with Mrs. W. R. Poindexter, ext. 5-8642, Mrs. T. F. Gannon, ext. 5-7042, Mrs. J. P. Smith, JE 9-1883, or Mrs. R. R. Javins, JE 4-1755.

Combined Farewell And Halloween Party Is Planned Oct. 23

A combination Halloween party and farewell party for Lt. Col. Henry Clanton will be held by employes of the Research and Development Division, Army Rocket and Guided Missile Agency, at the Elks Club on Oct. 23.

A story in last week's Redstone Rocket erroneously reported that a Halloween party would be held by employes of ARGMA's Ordnance Missile Laboratories Division. The party actually had been planned for R&D personnel.

Since that time, it has been decided to combine the Halloween party with a farewell party for Col. Clanton, Deputy Chief of R&D, who will leave soon for a

November Wedding Plans Revealed

Lt. Col. Gilbert P. Levy of Redstone Arsenal and Mrs. Patricia Petersen Jones of Florence, Ala., will be married in early November assignment in Washington, D. C.

John Fike, chairman for the affair, announced that the reservations are limited to 75 couples. It will be a costume party, he said, scheduled from 8 p.m. until midnight. Five silver dollars will be given the best costumed couple. Clifford Barnes Orchestra from Sheffield will furnish music.

Reservations may be made by contacting Fike at ext. 33116, or Lois Williams at ext. 33317. Tickets will be \$3 a couple or \$1.50 for stags.

Madison Pike PTA Holds Meeting

The regular monthly meeting of the Madison Pike Elementary School Parent-Teachers' Association was held at 7:30 p.m., Oct. 13, in the School Cafeteria, Lt. Col. Morton S. Jafie, president, presided.

Girl Scout Troop 193, sponsored by the PTA, opened the evening's program by presenting the colors and leading the assembled group in reciting the Pledge of Allegiance and singing one chorus of America.

Instead of the usual benediction, the Lord's Prayer was orally presented by Mrs. M. F. Smith and Miss A. E. Schrimsher, followed by a vocal presentation of the prayer by Mr. Tedford, choral director of Butler High School, accompanied by Miss Ann Wann on the piano.

Mrs. O. D. Street presented the treasurer's report, which showed a total of \$1543 has been voluntarily donated by parents to the Madison Pike PTA fund in lieu of the annual fund raising carnival held each winter. A grant of \$40.00 was approved from the University Place School Parent-Teachers' Association in view of the recent transfer of a group of Madison Pike pupils to that school.

Maj. L. H. Townsend, on behalf of Redstone Chapter No. 353 National Sojourners, Inc., presented a check for \$25.00 to the PTA to purchase equipment for the school infirmary.

The Membership Committee, headed by Mrs. O. G. Schoonover, reported that about 550 National Congress of Parents and Teachers membership cards have been issued.

As a part of the program, an intermission was called during the meeting to give the parents an opportunity to visit the new classrooms and consult with their children's teachers. After the con-

ber at the Redstone Arsenal Post Chapel.

Col. Levy is the son of Mrs. Rose M. Levy, who is residing with him at 17 Ripley Drive. He is deputy chief of the Jupiter Project Office at the Army Ballistic Missile Agency.

Mrs. Jones, originally from Knoxville, Tenn., is the daughter of Mr. and Mrs. J. Petersen of Bryn Mawr, Pa.

Firing Lab People Plan Christmas Party at Cape

Members of the Missile Firing Laboratory, Army Ballistic Missile Agency, at the Cape Canaveral Missile Test Annex, Titusville, Fla., are making advance plans for a Christmas party at the Koko Motel, Saturday, Dec. 12th, from 7 p.m. until dawn.

A five-piece combination orchestra will be imported from Miami to play for dancing. Admission, including buffet supper, will be \$3.50 per person.

Moving spirit in preparations for the party in the Missile Firing Laboratory is James Loy, M. F. L. visitor coordinator.

Mrs. Cooper Wins At Party Bridge

The party bridge group of the Redstone Arsenal Officers Wives Club met Thursday morning for weekly competition at the Officers Club with five tables in play.

Mrs. R. G. Cooper was high, Mrs. J. T. Bull placed second, Mrs. E. F. Provost scored low, and Mrs. W. L. Rehm was low.

The party bridge group meets weekly for competition on Thursday mornings at the Officers Club. Play is from 10 a.m. until 2 p.m. All members of the Wives Club are invited to participate. Reservations should be made not later than Wednesday noon with Mrs. A. Y. Harper, Jr.

Canasta Winner Is Mrs. E. A. Dicks

The canasta group of the Redstone Arsenal Officers Wives Club met Thursday evening at the Officers Club with four tables in play.

Mrs. E. A. Dicks placed high, Mrs. H. R. Arnold was second, and Mrs. H. B. Day scored low.

The canasta group meets weekly on Thursday evenings at 7:30

p.m. at the Officers Club. All members of the Wives Club are invited to participate. Reservations should be made by Wednesday noon with Mrs. H. R. Arnold, ext. 5-8854.

Toastmasters Plan Speech Contest

Friday night the Toastmaster Clubs of Huntsville will hold their second annual humorous speech contest. Area Governor Jack Cary, who will serve as chairman of the joint meeting, has disclosed that the meeting serves not only as a time for humor, but is also in observance of the 35th Anniversary of the organization of Toastmasters International.

President Thurman Burns, Redstone Club, Bill Millsap, Mason-Dixon Club and Pete Fuller, Huntsville Club have conducted humorous speech contests within their respective clubs and will each furnish two contestants for the joint Humorous Contest. A trophy will be presented the winner of the contest with appropriate certificates to the other participants.

The final decision as to who made the best humorous speech rests with Chief Judge Cliff Kiley of the Huntsville Club and his six judges. Originally in material and presentation will be scored heavily in the five to seven minute speeches. Each contestant will choose his own subject.

Arrangement Committee Chairman Lee Paris of the Mason-Dixon Club has reserved the Ball Room of the Russel Erskine Hotel for the joint meeting of Toastmasters and their ladies. The meeting will begin promptly at 7:00 p.m., October 23, 1959.

Those interested in seeing Toastmasters in action and hearing six well-prepared humorous speeches delivered by local club winners should make their reservations through any Toastmaster mentioned in this article. Publicity chairman Thurman Burns stated that early reports indicate a great amount of interest by the general public, and attendance by several civic and municipal leaders.

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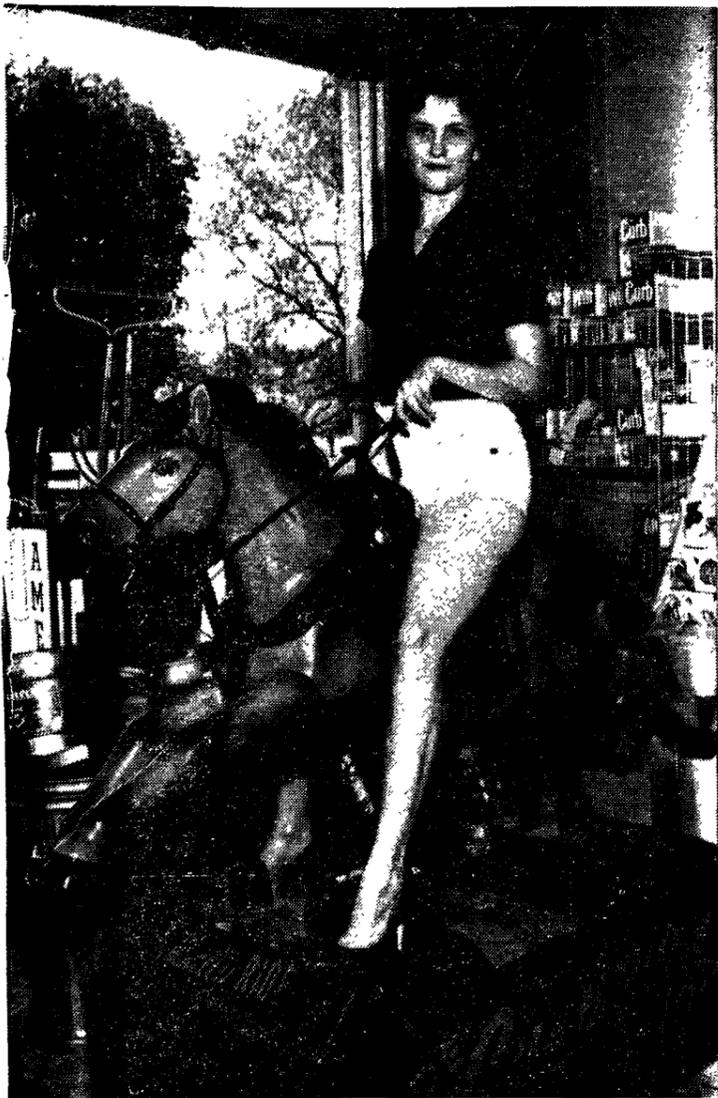


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COWGIRL—Making like a cowgirl—astride a rarin' grocery store rockin' horse—is this week's Rocket Pin-up, Miss Fay Myrick, who works in the AOMC Legal Office. A native of Russellville, Ala., she now resides in Huntsville.

Safety Scoreboard

(As of 19 Oct.)

Days since last civilian disabling injury	44	Our goal	60
Days since last military disabling injury	8	Our goal	30
Days since last contractor personnel disabling injury	27	Our goal	50
Days since last government motor vehicle accident	2	Our goal	30

DRIVING RECORD (Government Vehicles)

(As of 19 Oct.)

Organization	No. Accidents (1959)	Days Since Last MV Accident
Transportation Div. (RSA)	15	2
Post Engineer Div. (RSA)	14	20
Provost Marshall Div. (RSA)	18	17
Depot Operations (RSA)	15	25
All Other RSA	6	83
Thiokol (ARGMA)	13	20
All Other ARGMA	7	49
OGMS	11	83
ABMA	8	16

ABMA Employee Has Record Issued Under His Own Label

An Army Ballistic Missile Agency has recently had a 45 rpm record issued in Nashville under his own label.

He is Woody Richardson, of the Systems Analysis and Reliability Laboratory. His record label is "Woodrich"—a combination of his first and last names. The record, released Oct. 13, is currently being played by radio disc jockeys throughout this area, Richardson says.

The record is his first such effort in the music field, although he has written 30 or 40 unpub-

lished songs. One side is "I've Got a Pretty Little Girlie," sung by Buddy Hughey, 19-year-old Huntsville business school student. It was written by Jess Brooks, Huntsville real estate man. The other side of the record is "I've Got

and 23, "Around The World In 80 Days" starring David Niven and Cantinflas. Time 1245 and 1900. Running time 3 hrs. 15 min.

Saturday, Oct. 24, SPECIAL MATINEE, "Sing, Boy Sing" starring Tommy Sands and Lili Gentle. Time 1900.

Saturday, Oct. 24, "The Third Key" starring Jack Hawkins and Dorothy Alison. Time 1815 and 2015.

Sunday and Monday, Oct. 25 and 26, "Tarzan's Greatest Adventure" starring Gordon Scott and Sara Shane. Time Sunday 1400, 1815 and 2015; time Monday 1815 and 2015. No matinee Monday.

Tuesday, Oct. 27, "The Inn Of The Sixth Happiness" starring Ingrid Bergman and Curt Jurgens. Time 1315, 1815 and 2015.



GUARD OF MONTH—Lt. Col. Dean H. Jones, Redstone Provost Marshal, offers congratulations and a letter of commendation to James H. Moore, Company "C", Civilian Guard Detachment, as part of Mr. Moore's reward for being selected as the "Civilian Guard of the Month" for September.

Plenty of Lovin'," written by Richardson and also sung by Hughie. Musical accompaniment is provided the singer in each number. A production expediter in SA&R Lab, Richardson lives in Rogersville, Ala.

Movie Schedule

Wednesday, Oct. 21, "Woman Obsessed" starring Susan Hayward and Stephen Boyd. Time 1315, 1815 and 2015.

Thursday and Friday, Oct. 22

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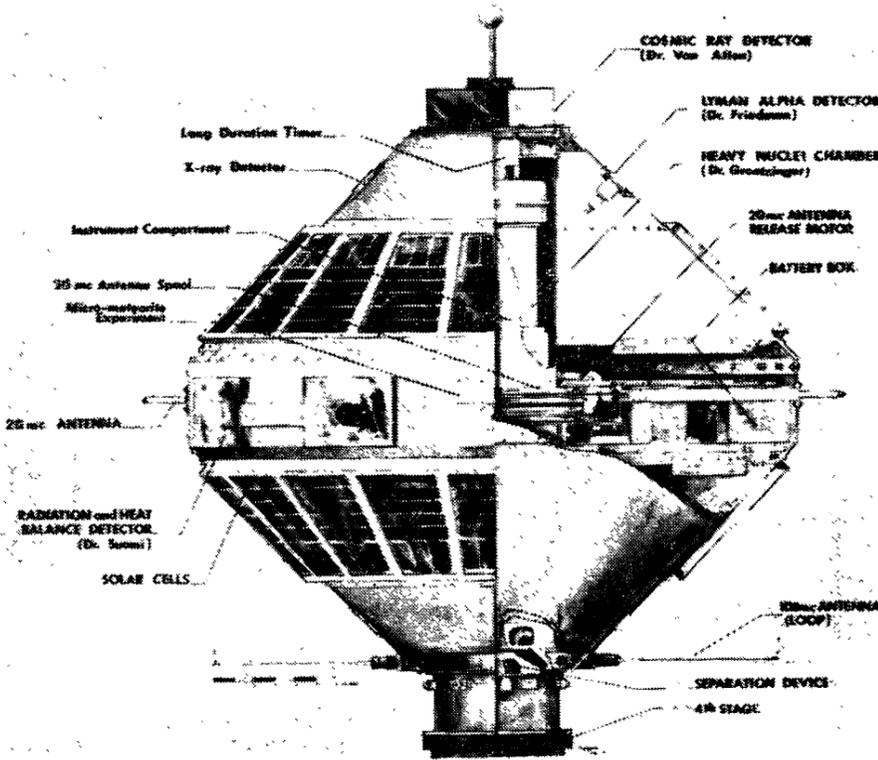
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EXPLORER VII EXPERIMENTS

Explorer VII Experiments Include Radiation Balance, Temperature

Five Others Are Contained In Orbiting Satellite

1. Radiation Balance.

The experiment was proposed by Dr. Harry Wexler of the U. S. Weather Bureau and is conducted by Dr. Verner E. Suomi of the University of Wisconsin.

The radiation balance of the Earth is nearly constant over the entire Earth for a period of several years. However, the Earth receives more energy from the sun near the Equator than it radiates into space. It radiates more energy into space from the poles than it receives from the sun. This energy must be transferred from the lower latitudes to the higher latitudes by means of ocean currents and the atmosphere. This transfer will be studied by measuring:

- Direct radiation from the sun.
- The fraction of this radiation diffusely reflected by the Earth, clouds and atmosphere.
- The fraction of radiation which is converted into heat by the Earth and ultimately is re-radiated back into space in the far infra-red portion of the spectrum.

Six sensing elements are designed to measure quantities: Two small hemispheres painted black to measure total energy at all wavelengths, two hemispheres painted white to measure radiation in the longer wavelength while reflecting short wave lengths; two sensing elements which have a special coating making them absorption-sensitive to

short wave radiation only. The latter, called Tabor sensors, are about one inch in diameter. The black and white sensors measure about one and one-quarter inch in diameter. The sensors are located at various points on the surface of Explorer VII.

2. Lyman-Alpha X-ray Experiment.

This experiment is conducted by Dr. Herbert Friedman of the Naval Research Laboratory. It will measure ambient sun-produced Lyman-Alpha and soft X-rays. It is also expected to furnish significant data on increased activity due to solar flares on the sun's surface. Measurements are sought on solar ultra-violet emissions at the 1216 angstrom unit line.

The radiation intensity will be measured by means of a photo sensitive ion chamber cylindrical in shape, three-quarters of an inch in diameter and one and a quarter inches long. The chamber is fitted with a window made of lithium fluoride.

The sensitivity of the ion chambers and their speed of response are adequate for monitoring the normal level of Lyman-Alpha radiation and the increase anticipated from solar flare activity.

The X-ray instrument is similar in size and shape to the Lyman-Alpha detector. It is filled with argon gas, has a beryllium window, and is sensitive to radiation wavelengths from 15 to 3 angstroms.

A photo cell is included to determine the aspect of the satellite with respect to the sun.

Outputs of the Lyman-Alpha ion chamber, the X-ray ion chamber and the photo cell are both fed into the 960 cps sub-carrier

oscillator.

3. Heavy Primary Cosmic Ray.

This experiment was designed by the late Dr. Gerhart Grotzinger of the Research Institute for Advanced Studies, (Martin Co.) Baltimore, Md. It employs an ion chamber to count cosmic rays in three classes. The three ranges have limits determined by the atomic numbers of specific atoms: lithium, carbon and fluorine whose numbers are 3, 6 and 9 respectively.

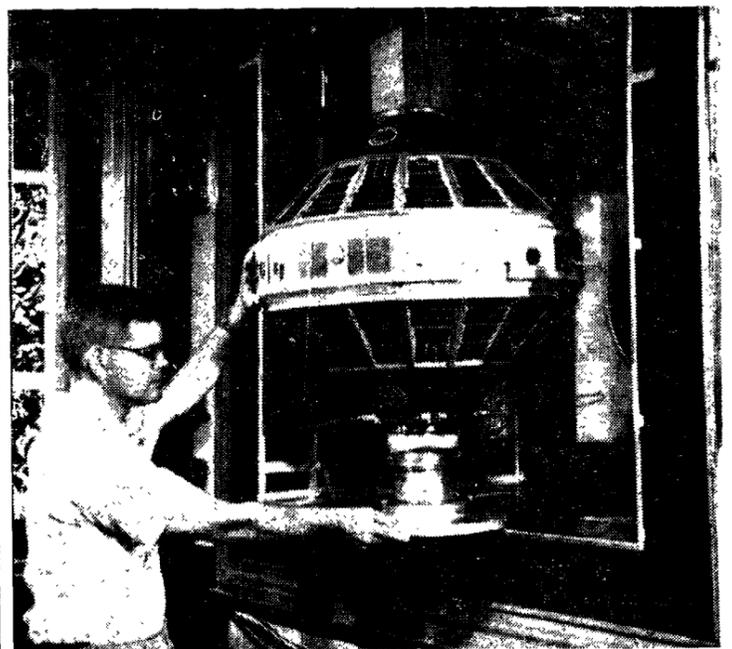
Any particle with a number equal to or greater than 3 will be counted in one channel, equal to or greater than 6 in another and equal to or greater than 9 in the remaining channel. The detection principle is based upon the fact that all primary particles to be encountered will be completely ionized nuclei having relativistic velocities (greater than 0.9 times the velocity of light).

The ionization chamber employed to detect the particles consists of a cylinder, closed at both ends, with a metallic wire along the axis which is insulated from the rest of the cylinder. The voltage maintained between this wire and the wall of the chamber is such that the wire collects all the electrons produced whenever a charged particle passes through the argon gas.

The total charge reaching the central wire is proportional to the total ionization generated by the particle and hence measures the charge of the particle. Output of the scaler circuits are converted to DC voltages which, in turn, are fed into the 960 cycle oscillator.

4. Micrometeorite Experiment.

The experiment is conducted by Herman E. LaGow of NASA. It will detect micrometeorite impacts in the order of 10 micron diameters or larger with a cadmium sulphide evaporated photo conductor. The cell is covered with an optically opaque film. An impact will produce an opening through which sunlight will be admitted to the cell through a diffusion surface of frosted glass. Admitted sunlight causes a drop in the output resistance of the de-



TESTS PAYLOAD—As part of the extensive testing program conducted on the Explorer VII satellite at the Army Ballistic Missile Agency, George E. Campbell places the payload into a test chamber for a temperature-vacuum calibration test. Campbell, an employe of the Brown Engineering Company of Huntsville, works with the Guidance and Control Laboratory at the Army Ballistic Missile Agency.

tor. The telemetering system is designed to report resistance variations between 100,000 and 500 ohms. Orientation of the cells will be provided by data collected from Friedman's aspect indicator.

The micrometeorite experiment originated with the Naval Research Laboratory and the detector was developed by NRL. Three detectors, one temperature sensor and two in-flight calibration resistors of 700 and 20,000 ohms will be utilized. The six outputs will be fed into a sub-carrier oscillator which will phase modulate the tracking transmitter operating on 108 megacycles. The six-channel multiplexer, sub-carrier oscillator and auxiliary equipment were developed by the Army Ballistic Missile Agency.

5. Cosmic Ray Experiment.

This experiment is conducted by Dr. James Van Allen of the State University of Iowa, whose detectors carried in the earlier Explorers and the Pioneer space probes measured the Great Radiation Belt in outer space.

The cosmic ray count will be measured by two tubes. One of these, similar to that flown in the Explorer IV satellite, has no special shielding and will be scaled 2048 to 1 to map the radiation belt. The other tube has a lead shield approximately 1 mm thick and will be scaled by 123 to 1 to give the cosmic ray count in the space areas below the belt. The output of both scalers will

key a 4-step sub-carrier oscillator with a center frequency of 1300 cps.

6. Exposed Solar Cell Experiment.

This experiment is conducted by the Army Ballistic Missile Agency and the Signal Corps' Research and Development Laboratories. An unprotected silicon cell is mounted on the equator of the satellite.

The purpose of the experiment is to determine the performance of an unprotected solar cell in a space environment. When incident light illuminates the cell it develops some 5 volts across a resistor. This voltage is fed into the 960 cps sub-carrier oscillator and the voltage variation, with time, will indicate the effect due to erosion.

7. Temperature measurements.

In previous satellite experiments the temperature data were obtained from indirect measurements. These data are not considered adequate to explain the temperature history of the satellite launched to date.

Several temperatures, in addition to those which are part of the LaGow and Suomi experiments, will be measured in:

- A very isolated skin area.
- A solar cell cluster.
- In a battery pack.
- One of the Van Allen experiment tubes.

These data will be telemetered with the Suomi experiment data.

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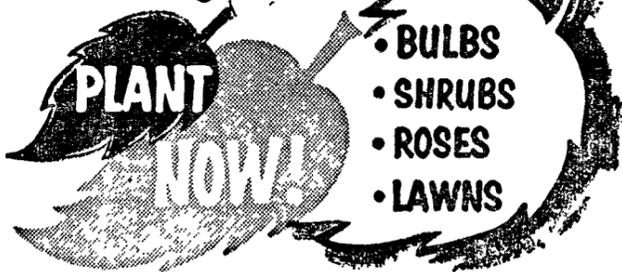
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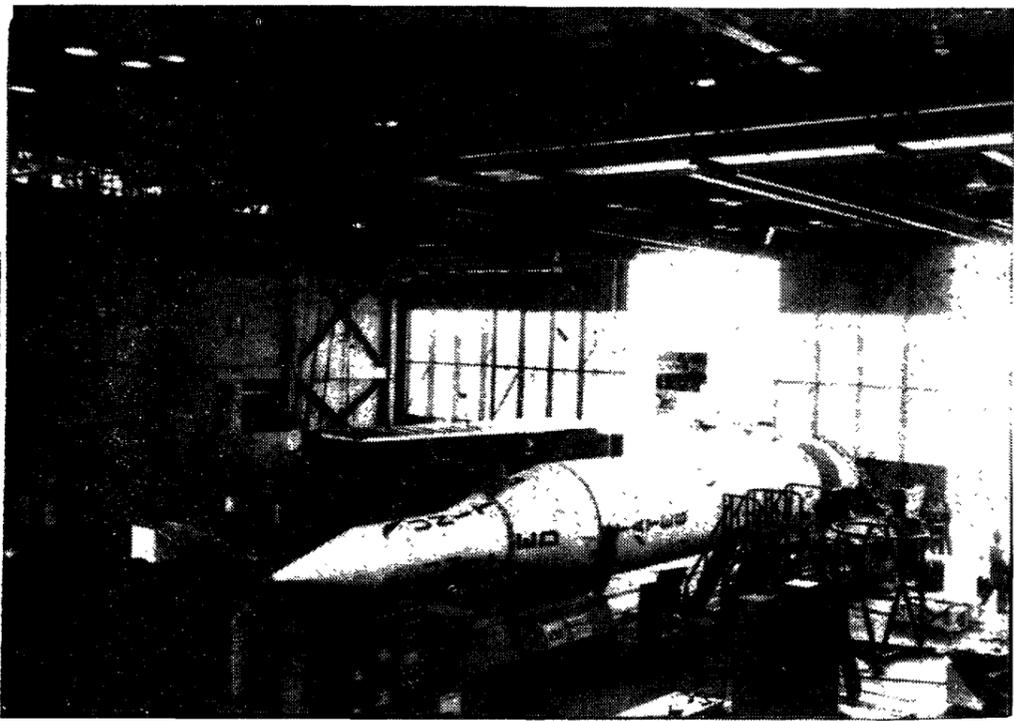
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THE JUNO II ROCKET which launched the Explorer VII satellite into orbit is shown during a pre-flight checkout conducted in a hangar at the Army Ballistic Missile Agency's Missile Firing Laboratory, Cape Canaveral, Fla.

JUNO II LAUNCHES EXPLORER VII MISSILE IS A MODIFIED JUPITER

1. Carrier Rocket
The carrier rocket employed in the NASA-directed Explorer VII earth satellite experiments is based upon the Army-developed Jupiter IRBM. The rocket consists of a modified Jupiter, serving as the first stage, and a three-stage cluster of solid propellant rocket motors mounted in a spinning tub assembly in the nose of the first stage.

The engineering principles and staging technique are similar to those employed by the Army's Jupiter-C satellite launching vehicle. The high-speed upper assembly is almost identical with that of the Jupiter-C.

This is the fifth launching of the Juno II, which measures 76 feet overall. It was first fired Dec. 6, 1958 to launch the Pioneer III space probe to an altitude of 63,500 miles. On March 3, 1959, the second Juno II launched the Pioneer IV probe, which is now in a solar orbit. Two other Junos failed to achieve their missions.

2. Main Stage
The Jupiter booster was modified to increase fuel capacity for this space mission. The booster section and fuel tanks were extended three feet. The fuel for main stage propulsion is a high grade of kerosene, and the oxidizer is liquid oxygen.

The booster's tank area begins at a point above the thrust unit. Bulkheads separate the engine compartment from the liquid oxygen tanks, these tanks from the fuel tanks, and the fuel tanks from the instrument compartment at the top end of the first stage.

The smooth outer shell of the booster also serves as the wall of the storage tanks. It is made from aluminum alloy rolled from flat sheets.

A bell-shaped thrust chamber is used to combine high altitude efficiency with maximum low altitude performance. The chamber is gimballed to permit employ-

ment of the exhaust jet to control the rocket's direction. To cool the chamber in operation the fuel circulates through the chamber walls before entering the injector which feeds it into the combustion area.

The engine's turbine assembly, with twin pumps roughly comparable in size to household pressure cookers, moves the fuel and oxidizer through the engine at tremendous rates of flow and pressure. The turbine is driven by hot gases generated by combustion of the main propellants in a gas generator. Exhaust from the generator adds to the engine's thrust.

The Jupiter IRBM entered flight test status in May, 1957, 16 months after the Army Ballistic Missile Agency of the Army Ordnance Missile Command initiated development.

In May, 1958, a full-scale Jupiter nose cone was recovered from the Atlantic Ocean, attesting to the solution of the aerodynamic reentry problem. On May 28, 1959, two monkeys were flown in a Jupiter nose cone under NASA sponsorship and successfully recovered alive.

3. Shroud
The specially designed metal shroud encases the JPL upper assembly and the satellite. It has three functions: to protect the assembly from the heat generated by the friction of air; to elimin-

ate dynamic forces to which the upper stages would be subjected otherwise; to provide support for the angle-of-attack meter required to give adequate control in the early stages of the flight.

It is estimated the shroud was subjected to heating to approximately 450 degrees Fahrenheit during the ascending portion of the trajectory.

4. Guidance.
The guidance and control systems are located in the forward part of the first stage and provide the only guidance after lift-off. The missile must "think" for itself, sense environmental conditions and adjust to them. The only ground-to-missile control is the destruct system installed for safety purposes.

The missile's guidance and control equipment are those employed in the Jupiter IRBM. It is known as the "Delta Minimum Inertial Guidance Scheme." It functions as follows:

The heart of the system is a stabilized platform which, by the operation of gyroscopes, remains in stable position during the entire flight.

On the launching pad the missile is oriented in the general direction of the target; that is, the desired point of injection in space. Then the small stabilized platform is aligned precisely to this target.

From the blockhouse nearby the data for the pre-calculated trajectory are recorded on tape and installed in the guidance computer of the rocket. By remote control these instructions can be changed up to within 20 minutes of firing time. The platform remains "space fixed" in flight.

Mounted on the platform are acceleration devices which measure accurately any deviation the rocket experiences. These may result from wind or changes in velocity. Information on the deviations is fed into the rocket's computer and necessary corrections are automatically transmitted to the steering system.

After the corrections have been determined, a spatial attitude control system comes into play. This includes air nozzles with variable thrust and the swivelling nozzle in the booster engine.

5. Firing Procedure.
The Juno II takes off vertically. During the burning time of the liquid propellant first stage engine it tilts into the trajectory. A few seconds after the engine cuts off, the booster is separated from the instrument compartment by pre-set explosive bolts. Coil springs are released which gently push the instrument compartment forward to effect separation.

Four small retro rockets then fire in the booster to retard its speed and steer it to one side. This eliminates any possibility of booster interference with the operation of the upper stages. The first stage falls towards Earth and burns up on reentry.

The upper assembly continues on the trajectory, coasting for approximately six minutes. Then a second separation takes place. The nose cone of the shroud is removed by explosive bolts and springs and a lateral kick rocket pushes it aside. The second stage then ignites. Now spinning at 450 rpm, the upper stage assembly pulls clear of the shroud. Third and fourth stages fire in rapid succession.

After the fourth stage burns out, the motor case is separated from the satellite which speeds on its way.

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SPORTS

Pigskin Highlights

ARGMA AND GARRISON TIE

Last week's Unit-Level football competition started off with a thriller between "A" Det ARGMA and Hq./Hq. Det USAG ARGMA led the scoring until the last four minutes when Garrison scored their second TD making the final score 14 all.

ARGMA opened the scoring early in the first period when QB Nelson passed to End Munson for the first tally of the contest. The PAT attempt failed.

Garrison lost no time in recovering with the Alfree-Cassidy combination coming up with a 8 point play. QB Alfree lashed a pass to End Cassidy who carried it over from the 20, the play covered 50 yards. Cassidy's drop kick was good for the PAT making the score 8-6, Garrison. No score came from either team in the second period and the 8-6 margin gave Garrison the lead at half-time.

During the third period, Capt. Paul Woodall's ARGMA unit took over the lead with a pass play engineered by alternate QB Hanson. Hanson unreeled a pass to HB Matthews who went all the way for the touchdown. Nelson's kick for the PAT was good giving the "rocketeers" a 14-8 margin over Garrison. No other score was registered in the third quarter and ARGMA still held the lead midway in the fourth period. With less than four minutes of running time in the fourth period, QB Alfree fired to End Coggins for a 27 yard TD play.

The score tied-up 14 all, Garrison attempted to pass for the PAT but the play never got off. Time ran out for both squads and the contest ended, the score 14-14, for the first tie ball game of the season.

Rumor has it unit commander Capt. Robert O'Brien has taken over as ringmaster of the troopers in Garrison, since their tie ball game with ARGMA. It was also reported that at least 8 more men have turned out for practice and interest is still building. Makes one wonder whether this is voluntary participation or obligated volunteering.

AIR FORCE WINS FOURTH
Coach James Maraist's 864th

team, with their effective double unit morce, ran over 3rd ETD during the second game of the week, 36-0. Air Force marked in all four periods, tallying 16 points in the last quarter.

QB Hackney engineered all the 6 pointers with the first score coming in the first period on a pass from Hackney to RE Andrews from 10 yards out. The attempt for the PAT failed. Again in the second period Hackney un-lashed his passing arm to teammate Dellegar who carried it over from the 10 yard line. The attempt for the PAT failed the score at halftime, 12-0 in favor of the 864th.

In the third period Hackney uncorked a short pass to HB Barnett who zig-zaged through the opposing for a 65 yard TD. Hackney passed to center Prouty to pick-up the PAT. The Hackney-Andrew combination came up with 14 points between themselves during the fourth period.

When Hackney passed to RE Andrews for a scoring play covering 30 yards. "Choo Choo" Cameron pile drove over for the P A T collecting his only score of the game. Hackney to Andrews late in the fourth quarter tallied the last 8 points of the game from the passing combination. Final score Air Force 36, 3rd ETD 0.

864th stands high and dry with four wins and no losses as of 19 October. The double unit combination has been quite effective against the Air Force's opponents so far this season. 854th will be after their fifth straight win this week when they meet the 291st MPC in the "Game of The Week". This promises to be a rough ball game since both teams play a "rock'em sock'em" brand of football. The MP's will be out to prove themselves after their early loss to UTC so don't miss this contest at 1900, Linton Field, Friday night.

"B", OGMS DOWNS "A", OGMS

In the "Battle of the School Troops", "B" Det. OGMS emerged victorious over "A" Det. OGMS last Thursday night in a somewhat onesided contest. "B" Det gathered a tally in every period to run the score up to 44-12 before the final whistle blew.

"B" Det. was the only one to score in the first half picking up 24 points by halftime. Beach took



105-POUND LITTLE LEAGUERS—The Redstone Arsenal 105-pound Little League team is composed of (left to right, first row): Carl Washburn, Tom Dooley, Joe Johnson, Graig Cummings, Tom Kemp, Richard Tobin, Jim Hartley, Dave Williams, Robert Flowers and Tom Clark; (second row, (left to right): Lt. Jim Russell, head coach; Bill Delamarter, Tim Toenman, Bill Leonard, Walker McGinnis, George Steffens, Claude Conners, Bob Buchholz, Dave Bartman, and Lt. Col. Henry Brotherton, assistant coach. Others on the team but not pictured are: Buddy Huffnagel, Mike Deutchmundy, Keith Granger, Eddie Otman, Johnson, Ronnie Knight, Ronnie Whitehead, and Tom Gannon.

* * * * *

Little Leaguers Remain Undefeated In Five Games

The Redstone Arsenal 105 pound Little League football team is undefeated thus far in five games.

To date they have rolled up 64 points to the oppositions six in early season games.

The team is coached again this year by head coach Lt. Jim Russell who tutored the young grid-ders during last year's season. He is assisted by Lt. Col. Henry Brotherton, Lt. Bob Brancel and SP4 Dan Thomas.

The team features a multiple offense, using mostly tee formations and the Notre Dame box. It has been the defensive ability that enabled them to remain undefeated thus far. Outstanding on defense so far have been left tackle Bob Buchholtz and right

end Tim Koeneman. Several others have shown exceptionally well on offense and defense and have possibilities of developing into excellent football players.

In addition to developing these outstanding boys, Lt. Russell states the coaches are interested in teaching all the boys some football. Stress is laid on football fundamentals, the importance of teamwork, and sportsmanship.

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the pigskin over from the 20 yard line and the PAT attempt was good. Reynolds came back late in the first period with a scoring play on a pass to Sims from the 1 yard line. The Reynolds-Sims twosome teamed up to register the PAT making the score 16-0, "B" Det.

Reynolds took over the scoring reins again in the second period when he reeled off 5 yards for pay dirt. The PAT was good and "B" led 24-0 at the half.

In the second half "A" Det. tasted glory for a short time when Morin got off a 10 yard pass to teammate Klink who rambled 20 yards for their first tally. The PAT attempt failed. Reynolds and Beach teamed up to give "B" Det a 6 pointer late in the third quarter but the PAT attempt failed. The score stood 30-6 "B" Det at the end of the third quarter.

"B" Det. scored early in the fourth period when Beach again rambled over from the 10 yard line. PAT attempt failed. "A" Det. came back in the fourth with a fine run by Wooten was covered 55 yards in a pay dirt play. The attempt for the PAT fell short.

Beach got loose once more in the fourth period and sprinted 30 yards for a fine scoring play. This ended scoring for the night with the "B" Det squad winning their first and "A" Det being credited with their third loss. Final score, "B" Det. 36, "A" Det. 12.

"B", ABMA AND MP'S TIE

Highly favored 291st MPC had to reach deep in the bag of tricks to come up with enough points to tie "B" Det. ABMA last Friday night, 20-20. The difference between "B" Det winning or losing no doubt was made up by a defensive lineman who switched to fullback on offense. "Moose" Draper, who tips the scales just over 280, did some fine driving through the MP line, in fact, whenever the "B" Det. squad

(Continued on Next Page)

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Pigskin Highlights

needed a few important yards, Draper always got what was needed then some.

Scoring got underway early in the first period when HB Mason of "B" Det. plunged over from the 6 yard line for the first tally of the contest. The attempt for the PAT failed.

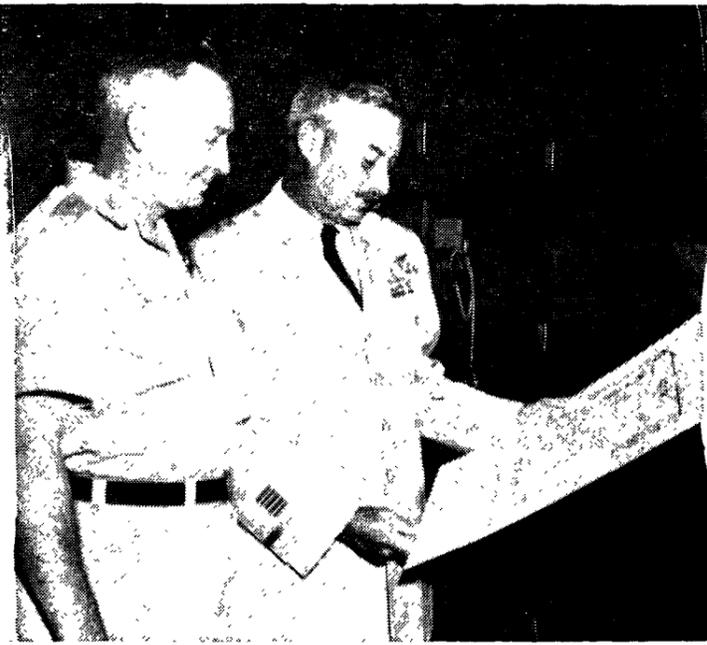
291st came back with a scoring play when QB Sayer went over from the 6 yard line but the attempt for the PAT also failed. Early in the second period "B" Det's QB Kleeka passed to End Warner who ran through the up-rights for 6 more points. HB Mason ran the PAT making the score 14-6, "B" Det.

Before the first half ended, the 291st came up with a fine scoring play when QB Sayer fired a short 10 yard pass to End Minor who battled the defenses for nearly 40 yards before finding pay dirt. Sayer drove for the PAT tying the score 14-14 as the halftime whistle sounded.

The third quarter opened with both teams exchanging the ball several times but not coming up with a score. In the fourth quarter "B" Det's FB Draper got his first tally from the 4 yardline after picking up most of the first downs himself on the down field drive. The attempt for the PAT failed.

The MP's "Mircal Man", Sayer, saved the day for the 291st when he drove over from the 3 yard line tying the score 20-20. The PAT attempt failed and the game ended with Lt. Paul Brinkpeter's "B" Det. surprising everybody including the 291st.

Capt. Joseph Myers' 291st although they still might be a little "draper shy", meet the mighty 864th Air Force this Friday in the "Game of the Week" which should prove to be quite a contest. This football season is far from being over although the 864th lead the standing with a four game winning streak. But take



YACHT CLUB COMMODORE—Maj. Gen. J. B. Medaris, Commanding General, AOMC, reads a certificate making him an honorary Commodore in the newly-formed Redstone Yacht Club. The presentation was made by Col. S. A. Hall (left), assistant chief of staff, AOMC Support Operations, and Commodore of the yacht club.

Redstone Yacht Club Unfurls Its Burgee

The Redstone Yacht Club officially unfurled its burgee (flag) Sept. 16 with the initial meeting

this for what it's worth. The 864th hasn't met the better teams of the league including the MP's, Hq. Det. USAG, "B" Det. ABMA and Hq. Det. UTC so anything could happen before this season winds up 25 November.

of the membership and board of governors.

Eight Arsenal boating enthusiasts attended the first meeting to elect officers and lay plans for future activities.

Formulated with the threefold purpose of encouraging water safety, assisting members in boat registration and promoting social and recreational activities a-

Second Round Cup Contenders Named

Winners in the second round of the Chrysler Cup Tournament being held by the golf group of the Redstone Arsenal Officers Wives Club have been announced as follows:

- Mrs. Stephen Albee Jr. over Mrs. C. J. Payne, 2 and 1.
- Mrs. R. O. Lehtonen over Mrs. J. A. Dasche, 1 up.
- Mrs. T. T. Paul over Mrs. H. E. Fite, 6 and 5.
- Mrs. H. H. Wishart over Mrs. J. G. Zierdt, 7 and 6.
- Mrs. O. O. Roundy over Mrs. W. R. Poindexter, 2 and 1.
- Mrs. J. E. Devine over Mrs. Glenn Crane, 4-3.
- Mrs. J. B. Levaas over Mrs. S. C. Holmes, 2 up.
- Mrs. G. L. Barnhill over Mrs. H. M. Murray, 5 and 3.

Third round and consolation matches in the tournament are underway this week.

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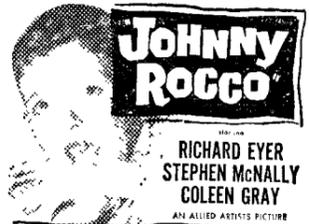
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TOURNAMENTS: Wednesday night, Oct. 21, a ping pong tournament will be played off. The rules are simple and you'll enjoy the excitement of the games. A single elimination type game will be played again this month. Meet in the game room at 1830 hours with the enthusiasts and we promise you an enjoyable evening.

Thursday night, Oct. 22, at 1800 hours the bridge friends will meet again for their monthly competitive play-off. New participants are welcomed each month. Join the group for a well spent evening excitement.

Dance classes: New classes in fox trot and cha cha will begin Nov. 4 at 1930 and 2030 hours.

Once a dancer is able to define with precise movement the difference between the progressive and sideward-close, the arrangement of varied combinations suitable for fox trot becomes fixing in one's mind a pattern consisting of a predetermined number of progressive steps to be followed with a sideward-close. Such arrangements may contain dip, pivot, left and right turns, cross steps, etc. All of these combinations will be included in the starting class.

Cha cha the latest of the Latin-American dances to reach America. Already rivals in popularity with the mambo, its Cuban counterpart and the Merengue from the Dominican Republic. This dance has been the dance of the month and the two dance classes have been very popular. Don't be a wall flower join the November classes today.

PARTIES: A fudge party will follow the cha cha dance class Friday night, Oct. 23, at 2000 hours. We would like to ask for volunteers to assist with the

candy making. Eating is a popular activity in any setting and when it is transported to the outdoors, it becomes more fascinating. Our new patio has been extremely popular since it has become cool and activities can be planned under the green scallops. A party outside is a pleasurable way to make the lowly frankfurter achieve the eminence normally attributed to the festive turkey and steak. Sign the roster today for the patio party scheduled for Oct. 24 at 1830 hours.

A lemon party can be fun and very beneficial to a recreation leader. This party will follow the patio party Saturday night, Oct. 24. In the event you have never experienced such a party you should make every effort to do so. You are sure to enjoy the fun and friendship. Refreshments will consist of lemonade and lemon drops.

DANCES: Who had a birthday this month? Cake and coffee will be served at 2000 hours on Oct. 25 and a dance will precede the party. The Birmingham and Huntsville hostess will be here for the kick-off.

Start searching now for a costume for the Halloween costume ball. This will be a very informal dance and there will be fun and excitement for all. Charlie Lyle and Orchestra will play slow, fast and Latin American music for your dancing and listening enjoyment. Now for a final reminder the date is Oct. 29 at 2000 til 2300 hours.

FOLK DANCING: Join the group for instructions in folk dancing every Tuesday night at 2000 hours. By the time the classes have been completed you will have enjoyed Danish, Swedish, German, Belgian, Norwegian, etc. folk dances. Set your bones dancing every Tuesday night in the lounge.

MUSIC: Music, music, everywhere, and you'll find that it is going to be best in the Rocket Service Club's Male Glee Club. This group is in the process of getting organized and we are expecting great things from them. Talented Bob Morgan will direct the group and we could find no other person as well qualified as



ANOTHER UGF PERFECT RECORD—Costa E. Apostolakis (right), assistant United Givers Fund chairman for the Army Ordnance Missile Command Headquarters, presents the Inspector General's office with a UGF missile. The office had 100 per cent participation and 100 per cent of its "fair share" goal. Mrs. Daree Winstead is shown accepting the award for Lt. Col. L. M. Anderson (center), AOMC Inspector General.

Two Weeks Remain To Redeem UGF Pledges, Balch Says

With only two weeks remaining in the 1959 Redstone United Givers Fund campaign, Jackson Balch executive chairman of the drive, has urged all Arsenal contributors to review their pledges in order that they might be redeemed before the Nov. 6 deadline.

Approximately 80 per cent of the pledges have been paid, Balch noted. At the end of last year's drive, 99 per cent of all pledges had been met.

As the drive enters its fifth week, UGF agencies throughout the Arsenal continue to sponsor meetings, speeches and special fund-raising activities to inform employes of the vital need for their support of the 21 UGF organizations. Redstone Arsenal, the Ordnance Missile Laboratories Division of ARGMA and the Ordnance Guided Missile School have been especially active lately in this regard.

The Redstone UGF Executive Committee has worked tirelessly since the beginning of the drive to insure that all donations designated for organizations in Madison County and surrounding communities are honored. For this reason, a team of administra-

he is. The group meets every Thursday night at 1930 hours. We are eagerly awaiting their first performance. Join the group today.

MOVIES: Two movies are scheduled for October 22 at 1830 hours. The series of movies that we have been showing have been very good and we encourage you to join the crowd in the TV room Thursday night.

tive assistants representing each of the Redstone UGF agencies has been formed to work with the Audits and Reports Committee in screening these designated contributions.

FOOTBALL STANDINGS

As Of 16 October 1959

	Won	Lost	Tie
864th Air Force	4	0	0
"B" Det ABMA	2	0	1
291st MPC	2	1	1
Hq Det USAG	2	1	1
3rd ETD	1	1	0
Hq Det UTC	1	1	0
"A" Det ARGMA	1	2	1
"A" Det OGMS	1	3	0
"B" Det OGMS	1	3	0

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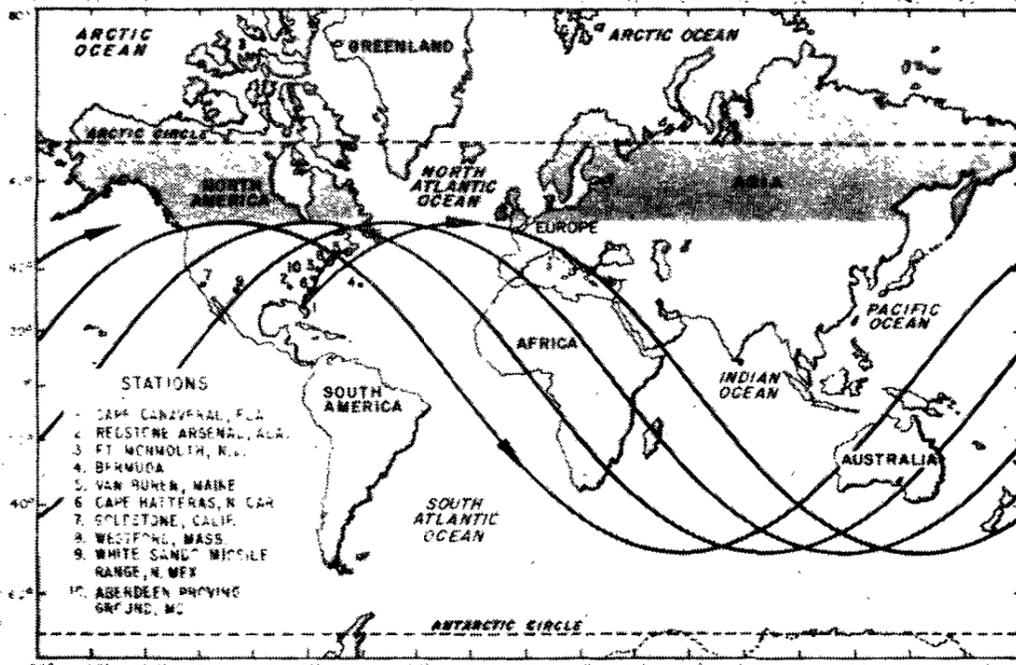
More than 20 stations around the world have a part in Explorer VII tracking and recording scientific information relayed by the satellite which will be made available to the 66 nations of IGY.

In addition, hundreds of "ham" operators will be able to tune in on at least one of the two main radio bands the satellite is using—20 megacycles.

One transmitter operating at 20 megacycles—powered by solar cells and expected to operate at least a year—is broadcasting a wavering signal. Recorded and analyzed, this signal provides data on all satellite experiments but the micrometeorite study.

Another transmitter, operating on chemical batteries which should run two months or more, is sending a continuous tracking signal and micrometeorite data on 108 megacycles.

Stations involved in this phase of tracking and data acquisition are NASA minitrack stations at Blossom Point, Md.; San Diego, Calif.; Santiago, Chile; Esselen Park, South Africa and Woomera, Australia, all of which are equipped to receive both 108 and 20 megacycles, and Quito, Ecuador; Lima Peru and Antofagasta, Chili, which are monitoring the satellite on 108 megacycles. Also, by special arrangement, a Navy installation in Hawaii and the University of Heidelberg, Germany,



TRACKING STATIONS FOR EXPLORER VII—Ten tracking stations, as indicated, are participating in initial tracking of the Explorer VII satellite. The first four orbits of the satellite are also depicted. The satellite was launched in a northeasterly direction from Cape Canaveral, and is orbiting between the 50th latitudes North and South.

* * *

will record 20-megacycle information.

Still another Explorer VII experiment is concerned with the paths radio waves take when they bounce off the ionosphere. High-powered receivers at National Bureau of Standards Laboratory, Boulder, Colo., Stanford University, University of Illinois and Penn State University also will monitor the 20-megacycle band to learn more about radio wave propagation.

Initial tracking of Explorer VII is done by U. S. Army microlock stations. This critical tracking phase of a satellite launching determines the point where the payload is injected into orbit.

Microlock stations measure the position of a vehicle in space by the Doppler effect—the change in tone of the 108 megacycle tracking signal as the satellite speeds away. In addition, high-powered radars at Cape Canaveral, "watch" the vehicle in the early flight state.

Microlock stations used in this experiment are at Cape Canaveral, and Huntsville, Ala., both operated by ABMA; Cape Hatteras, N. C., Bermuda, Fort Monmouth, N. J., and Van Buren, Me. all operated by the Army Signal Corps

and Aberdeen Proving Ground, Md., operated by the Army Ballistic Research Laboratory. Measurements received by these stations moved by teletype to the ABMA Evaluation Center at Huntsville and into an electronic

computer. This gave technicians enough information to be able to predict the satellite's actual orbital path—intelligence which was then flashed to tracking stations so they would know where and when to expect the satellite.

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ACCOUNTANTS TO MEET

The North Alabama Chapter of the National Association of Accountants completed plans for the monthly technical meeting Oct. 19 at the Tennessee Valley Country Club in Tusculumbia.

Education Director Billy Mitchell, Reynolds Metals Company announced that the first discussion forum would take place on Oct. 26 in Decatur. The subject to be discussed is "Fixed Asset Accounting." Members are urged to make plans to attend this meeting and guests are welcome.

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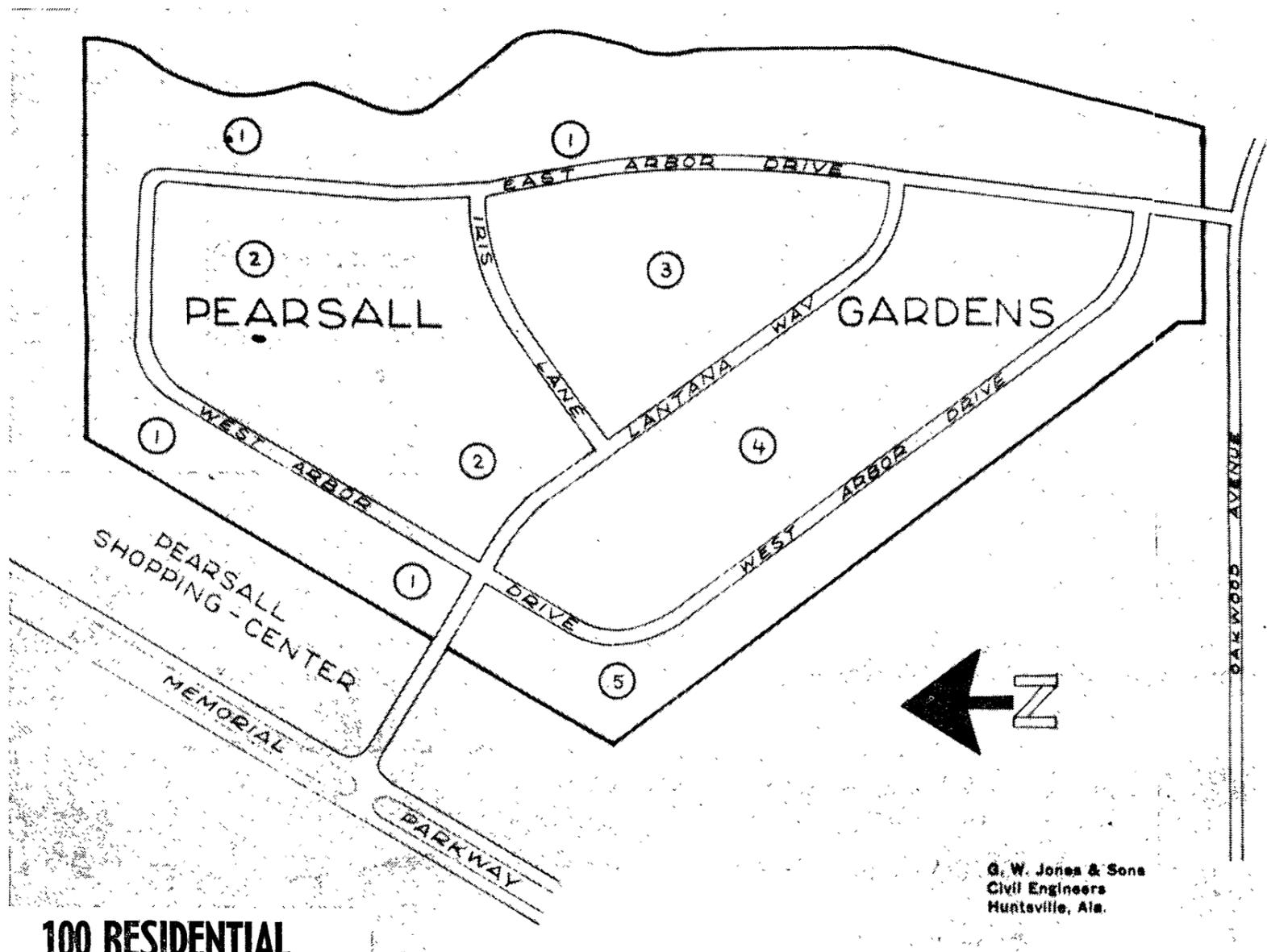
All you have to do is register for these free silver dollars. In addition all purchasers will have a separate drawing for

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This beautiful sub-division located 2 blocks north of Oakwood Ave., on North Memorial Parkway in Huntsville, Ala. It has all utilities including 6 inch water mains, fire and police protection, natural gas plus city sewerage. All streets will be paved and guttered as well as curbed. These lots are limited to residential property. They are well drained and will make ideal home sites. City School Bus route through sub-division.

Approved by V. A. for Home Loans

F.H.A. Loans are being made in this sub-division.

17.6 ACRES COMMERCIAL PROPERTY

The 17.6 acres commercial property is in two tracts and zoned for apartments. Our salesmen will furnish you the details of this property on request.

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S. Second St.

Phones: Day EM 3-3295; Night EM 3-4609

Pulaski, Tennessee

Electrical System Of Satellite Is ABMA Development

The progress achieved by Army technicians in miniaturization of complex electrical communications systems is strikingly demonstrated in the Explorer VII earth satellite.

The entire communications system is smaller than a table radio but contains as many components as 10 household television receivers.

Army Ballistic Missile Agency experts developed the system. Explorer VII was sponsored by the National Aeronautics and Space Administration which selected the scientific experiments contained in the satellite.

The all-transistorized communications system employs two radio transmitters, one operating at 20 megacycles and powered by the Sun. Because of more selective signal was essential for satellite tracking, a second transmitter powered by a battery, broadcasts on 108 megacycles.

Twenty-five space data measurements are transmitted to Earth stations on the 20-megacycle band and six are carried by the 108-megacycle transmitter in addition to the tracking signals.

Five electronic capsules house the transmitters and circuitry which translates and combines the

data acquired by the scientific detectors installed in the satellite.

Each capsule measures 5½ inches in diameter. The capsules range up to 3 inches in thickness and weigh from 5 to 18 ounces apiece. They are fashioned from a pink plastic.

The solar power system was developed by the Army's Research and Development Laboratory, Fort Monmouth, N. J., in cooperation with engineers of the Army Ballistic Missile Agency. Silicon cells convert sunlight into electrical energy.

On every orbit about the earth, Explorer VII passes out of sunlight. Six nickel cadmium batteries connected to the solar cells store up energy to power the transmitter during the dark phase of orbit.

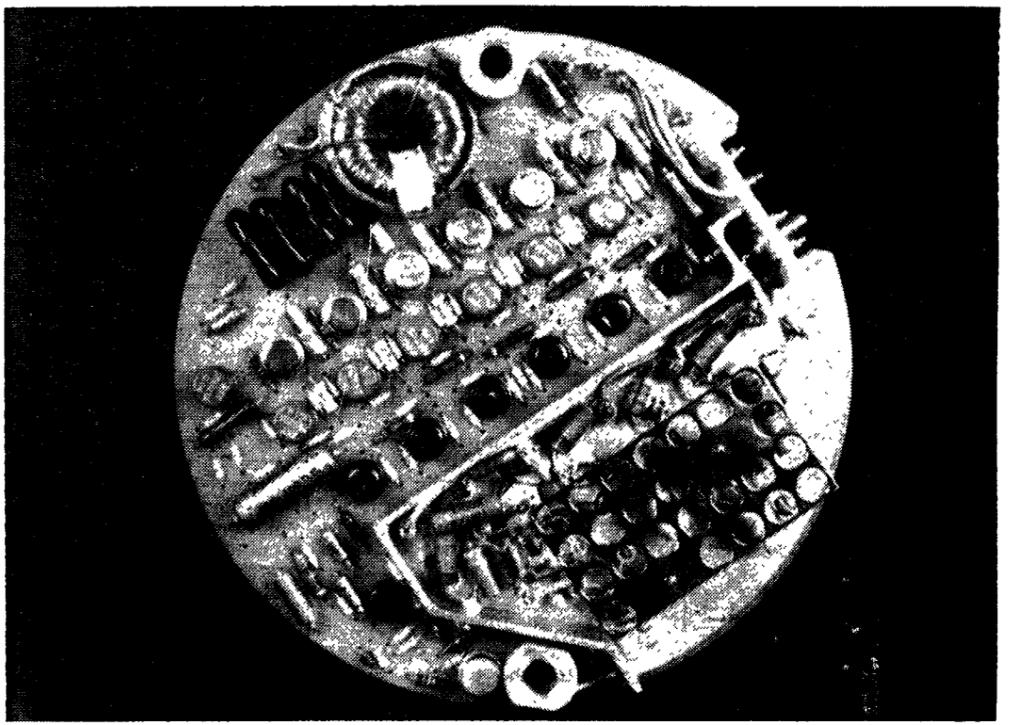
Two turnstile-type antennas located on the equator of the satellite transmit the 20-megacycle signals. They extend outward 12 feet on each side of Explorer VII. A timing mechanism devised by ABMA engineers released the antennas after the satellite reached orbital velocity of 18,000 miles per hour.

The other transmitter, fed by a mercury battery, employs fixed modified loop antennas positioned at the base of the satellite. Each loop is 10 inches in diameter. The battery is expected to operate 3 months.

A miniaturized timer will turn off the solar-power transmitter about one year after the launching. This is in accord with international agreements. The cutoff releases the radio frequency for later satellite experiments and thus avoids saturation of the available radio frequency bands.

The communications system was developed by the Guidance and Control Laboratory, Army Ballistic Missile Agency. Maximum reliability was a major consideration because once the satellite was in outer space, no repair would be possible.

Dr. Walter Haeusserman directs



ELECTRICAL EQUIPMENT—This is an example of the highly-miniaturized electrical equipment contained in the Explorer VII satellite. Above is the all-transistor 108 megacycle transmitter, together with a six-channel time division multiplexer and 730 cycle sub-carrier oscillator, contained in a single capsule. The capsule, measuring 5½ inches in diameter, is located, together with other electronic components, in the instrument column of the satellite.



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Births at Post Hospital

John Anthony Dematteis, Jr., 8 lbs. 1 oz., Oct. 7, son of S-Sgt. and Mrs. John A. Dematteis.

Patrick Lester Jeck, 8 lbs., ¾ oz., Oct. 7, son of Capt. and Mrs. Lester P. Jeck.

Nancy Robin Jeantet, 7 lbs. 7 ozs., Oct. 8, daughter of SP-6 and Mrs. Joe F. Jeantet, Jr.

Bruce Jefferson Curry, 7 lbs. 14 ozs., Oct. 8, son of M-Sgt. and Mrs. Drew J. Curry, Jr.

Joanie Lee Ivey, 8 lbs. 8½ ozs.,

Oct. 9, daughter of SP-4 and Mrs. Kermit M. Ivey.

Louise Nidever, 3 lbs. 15 ozs., Oct. 9, daughter of 1st Lt. and Mrs. Richard L. Nidever.

Michael John Trask, 8 lbs. 11½ ozs., Oct. 10, son of PFC and Mrs. John S. Trask.

Diane Jane Hooker, 8 lbs. 8 ozs., Oct. 10, daughter of Capt. and Mrs. William P. Hooker.

Gladys Marie Boyle, 7 lbs. 12½ ozs., Oct. 10, daughter of PFC and Mrs. Edward A. Boyle, Jr.

Richard Lawrence FitzGerald, 7 lbs. 6 ozs., Oct. 11, son of PFC and Mrs. Walter H. FitzGerald, Jr.

DANCE CLASS SCHEDULE

Dance classes sponsored by the Joint Youth Activities Council at Bldg. T-3181, phone extension 5-7042 are scheduled as follows:

Monday: 1st and 2nd graders—1:45-2:30 p.m.; 3rd and 4th graders—2:45-3:30 p.m.; 5th and 6th graders—3:30-4:15 p.m.

Tuesday: Adult Gymnastics class—11-11:45 a.m.; Pre-school children—1-1:45 p.m.; Kindergarten (5 years old)—1:45-2:30 p.m.; Ballet class (12-16 years)—3:45-4:30 p.m.; Ballroom class (Pre-teens and teenagers)—4:45-5:30 p.m. There are openings for evening ballroom classes.

the Laboratory. Josef Boehm had overall responsibility for the Explorer VII project and designed the package.

The Laboratory's Electrical Networks Systems Branch of which Hans J. Fichtner is chief was responsible for layout of the electronic system and development of power supplies. The Missile Instrumentation Branch headed by Otto Hoberg fabricated the electrical components.

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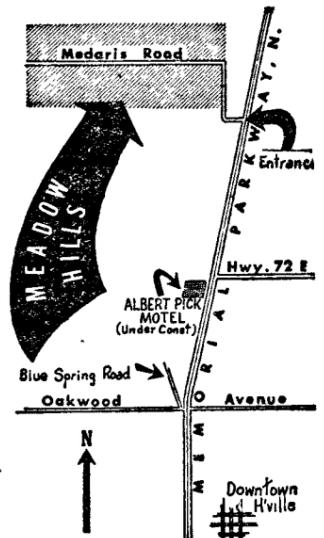
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SPACE CONDITIONS SIMULATED FOR SATELLITE PRE-LAUNCH TEST

A program of almost infinite testing under space-simulated conditions preceded the launching of Explorer VII, the United States' latest scientific earth satellite.

The satellite was prepared and launched by the Army Ballistic Missile Agency, Army Ordnance Missile Command, under the sponsorship of the National Aeronautics and Space Administration.

Payload testing, under the direction of Josef Boehm, Army project engineer for the Explorer VII program, was intended to subject the satellite to conditions as similar as possible to those of the actual launch and spatial orbit.

Boehm, a member of the ABMA Guidance and Control Laboratory under the direction of Dr. Walter Haussermann, conceived the exterior design of all Explorer satellites launched to date.

After the shell design had been determined, the G&C team assembled the payload, bringing together components from the State

University of Iowa, the University of Wisconsin, the Naval Research Laboratory, the Research Institute for Advanced Studies, the Army Signal Corps, NASA and ABMA.

This was followed by nearly a dozen environmental tests designed to assure the payload's proper functioning in space.

Balance tests were performed to check the dynamical behavior of the satellite in flight. This included both static and dynamic balance.

The satellite's moment of inertia was determined very closely about four axes; the spin axis and three axes through the center of gravity. Moment of inertia has an important bearing on rotation of the satellite during flight.

This was followed by a spin test to determine the effect of cluster spinning on the payload's delicate instruments. Functional operation of the payload instrumentation was monitored while the satellite was spun at a rate of 600 revolutions per minute for five minutes. Additional spinning was accomplished as required by results of the electronic check.

The instrument column was placed in a linear accelerator to test reaction to the initial shock resulting from the ignitions of the Juno II's high speed upper stages. Acute shock was applied for a few milliseconds. Before and after the test, package instrumentation was checked for proper operation. The linear accelerator, developed by the G&C Lab, is the only such device in the United States.

A vibration test followed in which the payload was mounted on a shake table to determine the instrumentation's tolerance to the sudden force experienced when the upper solid propellant stages of the Juno II were ignited. This testing was performed in three

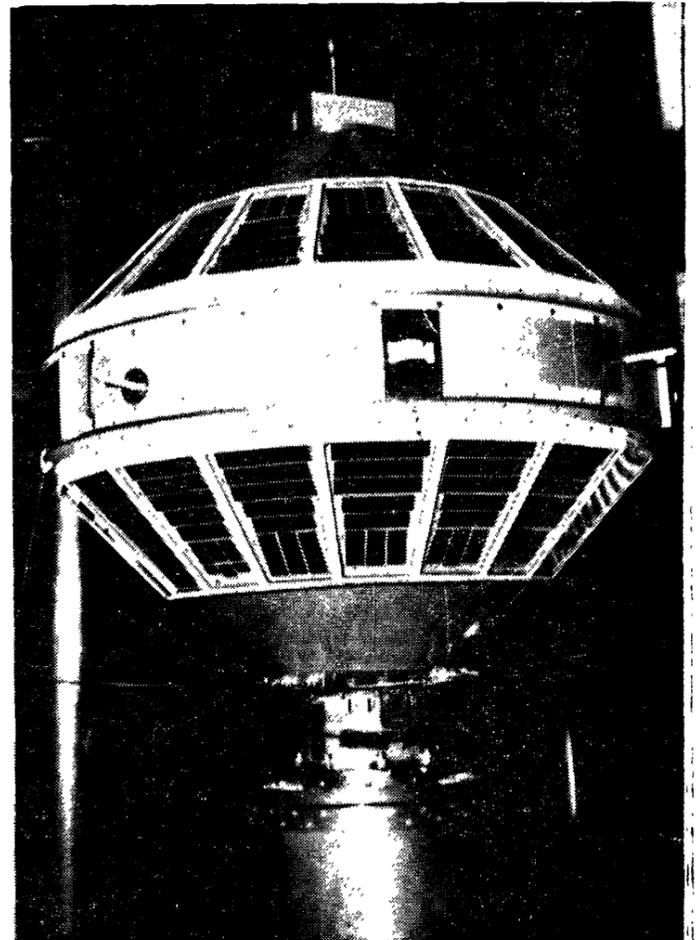
different positions with respect to the trust direction. Electronic operation of the payload instrumentation, with the exception of the solar cells, was monitored during each of the vibration sequences. Solar cell operation and condition was checked before and after vibration in each position.

Two centrifuge tests were performed to determine the payload's reaction to thrust of the rocket cluster. First was a static acceleration test during which the entire payload was subjected to the simulated force of acceleration without spinning. Instrumentation and solar cell operation was checked before and after this three-minute test.

The second centrifuge test combined spinning with acceleration force. This three-minute test was performed on the instrument column alone. Spin rate was 600 revolutions per minute and instrumentation was checked for proper operation before and after the test.

Vacuum and temperature tests were conducted simultaneously to determine the payload's ability to function in the space environment — a near vacuum where temperatures range from high to low extremes as the satellite passes in orbit from the earth's shadow into sunlight. Operation of satellite instrumentation was checked under 100 Microns vacuum at stabilized instrument package temperatures of 0 degrees C, 30 degrees C and 60 degrees C. Results of these tests showed that the payload could maintain the required interior temperatures and function properly in space.

In order to test operation of the payload's antenna release system under space-simulated conditions the satellite was taken to Langley Field, Va., where the National Aeronautics and Space Administration operates a 41-foot vacuum sphere. Results of this test proved performance of the release mechanism in a near vacuum. Four 12-foot antennas for the payload's 20 megacycle transmitter were extended from the satellite after it was launched in-



EXPLORER VII undergoes a pre-flight spin test mounted atop the fourth stage of the Juno II rocket. The test, conducted by NASA Jet Propulsion Laboratory technicians shortly before launching of the orbiter, took place at the Army Ballistic Missile Agency's Missile Firing Laboratory, Cape Canaveral, Fla.

* * * * *

to orbit.

Operation of the satellite's highly miniaturized 20 megacycle transmitter was tested under vacuum conditions for two seven-day periods to assure performance. Once launched into space, the transmitter is to operate for

one year when it will be turned off by a timer carried within the satellite.

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ROOM & BOARD for 3 or 4 boys in private home. Phone JE 9-4807. 1tp

FOR SALE — Six room house in Warrenton Shores near Guntersville. Walking distance from school and churches. Lake access available. Bill McKnight, Route 2, Somerville or Redstone Extension 32297. 10-28-p

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Explorer VII's Weight Breakdown
The weight breakdown of the latest scientific earth satellite is as follows:
Battery supply—15,682 pounds.
Solar cells — 13,044 pounds.
Instrument package — 14,233 pounds.
Separation device—2,750 pounds
Detectors and sensors — 2,968 pounds.
Balancing weights—316 pounds
Antenna systems:
103 megacycles—2,172 pounds
20 megacycles—3,490 pounds
Paint & rockide coating—728 pounds.
Potting and wiring — 1,122 pounds.
Structure—29,453 pounds.
Total — 91,508 pounds.

BEAL ADDRESSES RESERVES
Last week John D. Beal, Jr., general engineer, of the Industrial Division, ABMA, lectured the Naval Reserve Research Company 6-17, Huntsville, on the subject "Installation of Standards in an R & D Program."
Beal, who is a commander in the Naval Reserve, illustrated his talk with examples of scientific management.

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INCENTIVE AWARDS

The following individuals in elements of the Army Ordnance Missile Command, Redstone Arsenal received sustained superior performance awards, or outstanding performance awards recently:

Annie A. Oliver, Clerk General, Industrial Division, ABMA; Gene T. Rice, Supervisory Aeronautical Research Engineer, Guidance and Control Lab, ABMA; Charles M. Chambers, Instrument Maker, G & C Lab, ABMA; Prince H. Danley, Jr., Program Specialist, Jupiter Proj. Lab, ABMA; Emil A. H. Hellebrand, Aeronautical Research Engineer, S & M Lab, ABMA;

Charlotte F. Chesnut, Librarian, Operating Svc Off, ABMA; Adele

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Wanda L. Killian, Supv. Clerk, Intelligence & Security, RSA;

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